What is claimed is:

1. A composition for lanthionizing keratin fibers comprising at least one organic nucleophile and at least one hydroxide ion generator, wherein said at least one organic nucleophile is present in an amount effective to increase the tensile strength of said keratin fibers, said amount ranging from greater than 0.1% but less than 3% by weight relative to the total weight of the composition, with the proviso that if said at least one organic nucleophile is chosen from cysteine and derivatives thereof, said at least one organic nucleophile is present in an amount greater than 1.5% but less than 3% by weight relative to the total weight of said composition.

2. A composition for lanthionizing keratin fibers according to claim 1, wherein said at least one organic nucleophile is generated by at least one organic nucleophile source.

3. A composition for lanthionizing keratin fibers according to claim 2, wherein said at least one organic nucleophile is generated *in situ*.

4. A composition for lanthionizing keratin fibers according to claim 1, wherein said at least one organic nucleophile is chosen from basic amino acids, amines, alcohols, and mercaptans.

5. A composition for lanthionizing keratin fibers according to claim 2, wherein said at least one organic nucleophile source is chosen from derivatives of basic amino acids, derivatives of amines, derivatives of alcohols, and derivatives of mercaptans.

6. A composition for lanthionizing keratin fibers according to claim 4, wherein said basic amino acids are chosen from lysine, arginine, and histidine.

7. A composition for lanthionizing keratin fibers according to claim 6, wherein said basic amino acids are chosen from lysine and arginine.

8. A composition for lanthionizing keratin fibers according to claim 7, wherein said basic amino acids are chosen from lysine and arginine in a non-ionic form, an ammonium form, and a carboxylate form.

9. A composition for lanthionizing keratin fibers according to claim 4, wherein said at least one organic nucleophile is chosen from amines of the following formula and salts thereof:

$$N(R)_3$$

wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

10. A composition for lanthionizing keratin fibers according to claim 9, wherein R comprises from 1 to 6 carbon atoms.

11. A composition for lanthionizing keratin fibers according to claim 10, wherein R comprises from 1 to 4 carbon atoms.

12. A composition for lanthionizing keratin fibers according to claim 9, wherein at least one R is substituted with at least one group chosen from –COOR, $–COON(R)_2$, –OH, –SH, $–N(R)_2$ and salts of any of the foregoing, wherein each R is

independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

13. A composition for lanthionizing keratin fibers according to claim 12, wherein R comprises from 1 to 6 carbon atoms.

14. A composition for lanthionizing keratin fibers according to claim 13, wherein R comprises from 1 to 4 carbon atoms.

15. A composition for lanthionizing keratin fibers according to claim 9, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

16. A composition for lanthionizing keratin fibers according to claim 15, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

17. A composition for lanthionizing keratin fibers according to claim 4, wherein said amines are chosen from isopropylamine, monoethanolamine, and aminomethylpropanol.

18. A composition for lanthionizing keratin fibers according to claim 4, wherein said at least one organic nucleophile is chosen from alcohols of the following formula and salts thereof:

R-OH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

19. A composition for lanthionizing keratin fibers according to claim 18, wherein R comprises from 1 to 6 carbon atoms.

20. A composition for lanthionizing keratin fibers according to claim 19, wherein R comprises from 1 to 4 carbon atoms.

21. A composition for lanthionizing keratin fibers according to claim 18, wherein R is substituted with at least one group chosen from –COOR', $-COON(R')_2$, –OH, –SH, $-N(R')_2$ and salts of any of the foregoing, wherein each R' is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

22. A composition for lanthionizing keratin fibers according to claim 21, wherein R comprises from 1 to 6 carbon atoms.

23. A composition for lanthionizing keratin fibers according to claim 22, wherein R comprises from 1 to 4 carbon atoms.

24. A composition for lanthionizing keratin fibers according to claim 18, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

25. A composition for lanthionizing keratin fibers according to claim 24, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

26. A composition for lanthionizing keratin fibers according to claim 4, wherein said at least one organic nucleophile is chosen from mercaptans of the following formula and salts thereof:

R-SH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

27. A composition for lanthionizing keratin fibers according to claim 26, wherein R comprises from 1 to 6 carbon atoms.

28. A composition for lanthionizing keratin fibers according to claim 27, wherein R comprises from 1 to 4 carbon atoms.

29. A composition for lanthionizing keratin fibers according to claim 26, wherein R is substituted with at least one group chosen from –COOR, $–COON(R)_2$, –OH, –SH, $–N(R)_2$ and salts of any of the foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and

unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

30. A composition for lanthionizing keratin fibers according to claim 29, wherein R comprises from 1 to 6 carbon atoms.

31. A composition for lanthionizing keratin fibers according to claim 30, wherein R comprises from 1 to 4 carbon atoms.

32. A composition for lanthionizing keratin fibers according to claim 26, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts, and inorganic acid addition salts.

33. A composition for lanthionizing keratin fibers according to claim 32, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

34. A composition for lanthionizing keratin fibers according to claim 1, further comprising at least one other constituent chosen from solvents; preservatives; perfumes; UV filters; active hair care agents; plasticizers; anionic, cationic, amphoteric, nonionic, and zwitterionic surfactants; hair conditioning agents; silicone fluids; fatty esters; fatty alcohol, fatty chain hydrocarbons; emollients; lubricants; penetrants; anionic, cationic, amphoteric, nonionic, and zwitterionic polymers; dyes; tints; bleaches; reducing agents; pH adjusting agents;

sunscreens; thickening agents; and at least one agent chosen from chelating agents, sequestering agents and salts thereof.

35. A composition for lanthionizing keratin fibers according to claim 1, further comprising at least one additional nucleophile different from said at least one organic nucleophile.

36. A pretreatment composition for keratin fibers comprising at least one organic nucleophile, wherein said pretreatment composition is applied to said keratin fibers prior to applying a relaxing composition, and further wherein said at least one organic nucleophile is present in an amount effective to increase the tensile strength of said keratin fibers.

37. A pretreatment composition for lanthionizing keratin fibers according to claim 36, wherein said at least one organic nucleophile is generated by at least one organic nucleophile source.

38. A pretreatment composition for lanthionizing keratin fibers according to claim 36, wherein said at least one organic nucleophile is generated *in situ*.

39. A pretreatment composition for lanthionizing keratin fibers according to claim 36, wherein said at least one organic nucleophile is chosen from basic amino acids, amines, alcohols, and mercaptans.

40. A pretreatment composition for lanthionizing keratin fibers according to claim 37, wherein said at least one organic nucleophile source is chosen from derivatives of basic amino acids, derivatives of amines, derivatives of alcohols, and

derivatives of mercaptans.

41. A pretreatment composition for lanthionizing keratin fibers according to claim 39, wherein said basic amino acids are chosen from lysine, arginine, and histidine.

42. A pretreatment composition for lanthionizing keratin fibers according to claim 41, wherein said basic amino acids are chosen from lysine and arginine.

43. A pretreatment composition for lanthionizing keratin fibers according to claim 42, wherein said basic amino acids are chosen from lysine and arginine in a non-ionic form, an ammonium form, and a carboxylate form.

44. A pretreatment composition for lanthionizing keratin fibers according to claim 39, wherein said at least one organic nucleophile is chosen from amines of the following formula and salts thereof:

$$N(R)_3$$

wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

45. A pretreatment composition for lanthionizing keratin fibers according to claim 44, wherein R comprises from 1 to 6 carbon atoms.

46. A pretreatment composition for lanthionizing keratin fibers according to claim 45, wherein R comprises from 1 to 4 carbon atoms.

47. A pretreatment composition for lanthionizing keratin fibers according to claim 44, wherein at least one R is substituted with at least one group chosen from –COOR, –COON$(R)_2$, –OH, –SH, –N$(R)_2$ and salts of any of the foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

48. A pretreatment composition for lanthionizing keratin fibers according to claim 47, wherein R comprises from 1 to 6 carbon atoms.

49. A pretreatment composition for lanthionizing keratin fibers according to claim 48, wherein R comprises from 1 to 4 carbon atoms.

50. A pretreatment composition for lanthionizing keratin fibers according to claim 44, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

51. A pretreatment composition for lanthionizing keratin fibers according to claim 50, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

52. A pretreatment composition for lanthionizing keratin fibers according to claim 39, wherein said amines are chosen from isopropylamine,

monoethanolamine, and aminomethylpropanol.

53. A pretreatment composition for lanthionizing keratin fibers according to claim 39, wherein said at least one organic nucleophile is chosen from alcohols of the following formula and salts thereof:

R-OH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

54. A pretreatment composition for lanthionizing keratin fibers according to claim 53, wherein R comprises from 1 to 6 carbon atoms.

55. A pretreatment composition for lanthionizing keratin fibers according to claim 54, wherein R comprises from 1 to 4 carbon atoms.

56. A pretreatment composition for lanthionizing keratin fibers according to claim 53, wherein R is substituted with at least one group chosen from –COOR', $-COON(R')_2$, –OH, –SH, $-N(R')_2$ and salts of any of the foregoing, wherein each R' is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

57. A pretreatment composition for lanthionizing keratin fibers according to claim 56, wherein R comprises from 1 to 6 carbon atoms.

58. A pretreatment composition for lanthionizing keratin fibers according

to claim 57, wherein R comprises from 1 to 4 carbon atoms.

59. A pretreatment composition for lanthionizing keratin fibers according to claim 53, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

60. A pretreatment composition for lanthionizing keratin fibers according to claim 59, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

61. A pretreatment composition for lanthionizing keratin fibers according to claim 39, wherein said at least one organic nucleophile is chosen from mercaptans of the following formula and salts thereof:

R-SH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

62. A pretreatment composition for lanthionizing keratin fibers according to claim 61, wherein R comprises from 1 to 6 carbon atoms.

63. A pretreatment composition for lanthionizing keratin fibers according to claim 62, wherein R comprises from 1 to 4 carbon atoms.

64. A pretreatment composition for lanthionizing keratin fibers according to claim 61, wherein R is substituted with at least one group chosen from –COOR, $–COON(R)_2$, –OH, –SH, $–N(R)_2$ and salts of any of the foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

65. A pretreatment composition for lanthionizing keratin fibers according to claim 64, wherein R comprises from 1 to 6 carbon atoms.

66. A pretreatment composition for lanthionizing keratin fibers according to claim 65, wherein R comprises from 1 to 4 carbon atoms.

67. A pretreatment composition for lanthionizing keratin fibers according to claim 61, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

68. A pretreatment composition for lanthionizing keratin fibers according to claim 67, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

69. A pretreatment composition for lanthionizing keratin fibers according to claim 36, further comprising at least one other constituent chosen from solvents;

preservatives; perfumes; UV filters; active hair care agents; plasticizers; anionic, cationic, amphoteric, nonionic, and zwitterionic surfactants; hair conditioning agents; silicone fluids; fatty esters; fatty alcohol, fatty chain hydrocarbons; emollients; lubricants; penetrants; anionic, cationic, amphoteric, nonionic, and zwitterionic polymers; dyes; tints; bleaches; reducing agents; pH adjusting agents; sunscreens; thickening agents; and at least one agent chosen from chelating agents, sequestering agents and salts thereof.

70. A pretreatment composition for lanthionizing keratin fibers according to claim 36, further comprising at least one additional nucleophile different from said at least one nucleophile.

71. A pretreatment composition for lanthionizing keratin fibers according to claim 36, wherein said at least one organic nucleophile is present in an amount ranging up to 100% by weight relative to the total weight of the pretreatment composition.

72. A pretreatment composition for lanthionizing keratin fibers according to claim 71, wherein said at least one organic nucleophile is present in an amount ranging from 0.001% to 10.0% by weight relative to the total weight of the pretreatment composition.

73. A pretreatment composition for lanthionizing keratin fibers according to claim 72, wherein said at least one organic nucleophile is present in an amount ranging from 0.01% to 2.0% by weight relative to the total weight of the

pretreatment composition.

74. A pretreatment composition for lanthionizing keratin fibers according to claim 73, wherein said at least one organic nucleophile is present in an amount of 0.2% by weight relative to the total weight of the pretreatment composition.

75. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers, comprising:

applying to said keratin fibers a pretreatment composition comprising at least one organic nucleophile, wherein said at least one organic nucleophile is present in an amount effective to increase the tensile strength of said keratin fibers;

applying a relaxing composition to said pre-treated keratin fibers for a sufficient period of time to lanthionize said keratin fibers; and

terminating said lanthionization when a desired level of relaxation of said keratin fibers has been reached.

76. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said at least one organic nucleophile is generated by at least one organic nucleophile source.

77. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said at least one organic nucleophile is generated *in situ*.

78. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said relaxing composition comprises at

least one hydroxide ion generator which generates hydroxide ions *in situ*.

79. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said at least one organic nucleophile is chosen from basic amino acids, amines, alcohols, and mercaptans.

80. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 76, wherein said at least one organic nucleophile source is chosen from derivatives of basic amino acids, derivatives of amines, derivatives of alcohols, and derivatives of mercaptans.

81. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 79, wherein said basic amino acids are chosen from lysine, arginine, and histidine.

82. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 81, wherein said basic amino acids are chosen from lysine and arginine.

83. A method for lanthionizing keratin fibers according to claim 82, wherein said basic amino acids are chosen from lysine and arginine in a non-ionic form, an ammonium form, and a carboxylate form.

84. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 79, wherein said at least one organic nucleophile is chosen from amines of the following formula and salts thereof:

$$N(R)_3$$

wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

85. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 84, wherein R comprises from 1 to 6 carbon atoms.

86. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 85, wherein R comprises from 1 to 4 carbon atoms.

87. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 84, wherein at least one R is substituted with at least one group chosen from –COOR, $-COON(R)_2$, –OH, –SH, $-N(R)_2$ and salts of any of the foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

88. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 87, wherein R comprises from 1 to 6 carbon atoms.

89. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 88, wherein R comprises from 1 to 4 carbon atoms.

90. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 84, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

91. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 90, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

92. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 79, wherein said amines are chosen from isopropylamine, monoethanolamine, and aminomethylpropanol.

93. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said at least one organic nucleophile is chosen from alcohols of the following formula and salts thereof:

R-OH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

94. A method for lanthionizing keratin fibers to achieve relaxation of said

keratin fibers according to claim 93, wherein R comprises from 1 to 6 carbon atoms.

95. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 94, wherein R comprises from 1 to 4 carbon atoms.

96. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 93, wherein R is substituted with at least one group chosen from –COOR', –COON(R')$_2$, –OH, –SH, –N(R')$_2$ and salts of any of the foregoing, wherein each R' is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

97. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 96, wherein R comprises from 1 to 6 carbon atoms.

98. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 97, wherein R comprises from 1 to 4 carbon atoms.

99. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 96, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

100. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 99, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

101. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said at least one organic nucleophile is chosen from mercaptans of the following formula and salts thereof:

R-SH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

102. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 101, wherein R comprises from 1 to 6 carbon atoms.

103. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 102, wherein R comprises from 1 to 4 carbon atoms.

104. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 101, wherein R is substituted with at least one group chosen from –COOR, –$COON(R)_2$, –OH, –SH, –$N(R)_2$ and salts of any of the

foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

105. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 104, wherein R comprises from 1 to 6 carbon atoms.

106. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 105, wherein R comprises from 1 to 4 carbon atoms.

107. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 101, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

108. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 107, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

109. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein at least one of said pretreatment composition and said relaxing composition further comprises at least one other

constituent chosen from solvents; preservatives; perfumes; UV filters; active hair care agents; plasticizers; anionic, cationic, amphoteric, nonionic, and zwitterionic surfactants; hair conditioning agents; silicone fluids; fatty esters; fatty alcohol, fatty chain hydrocarbons; emollients; lubricants; penetrants; anionic, cationic, amphoteric, nonionic, and zwitterionic polymers; dyes; tints; bleaches; reducing agents; pH adjusting agents; sunscreens; thickening agents; and at least one agent chosen from chelating agents, sequestering agents and salts thereof.

110. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein at least one of said pretreatment composition and said relaxing composition further comprises at least one additional nucleophile different from said at least one nucleophile.

111. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 75, wherein said at least one organic nucleophile is present in an amount ranging up to 100% by weight relative to the total weight of the pretreatment composition.

112. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 111, wherein said at least one organic nucleophile is present in an amount ranging from 0.001% to 10.0% by weight relative to the total weight of the pretreatment composition.

113. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 112, wherein said at least one organic nucleophile

is present in an amount ranging from 0.01% to 2.0% by weight relative to the total weight of the pretreatment composition.

114. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 113, wherein said at least one organic nucleophile is present in an amount of 2.0% by weight relative to the total weight of the pretreatment composition.

115. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers, comprising:

applying a relaxing composition to keratin fibers for a sufficient period of time to lanthionize said keratin fibers, wherein said relaxing composition further comprises at least one organic nucleophile, and further wherein said at least one organic nucleophile is present in an amount effective to increase the tensile strength of said keratin fibers ranging from greater than 0.1% but less than 3% by weight relative to the total weight of the relaxing composition; and

terminating said lanthionization when a desired level of relaxation of said keratin fibers has been reached.

116. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 115, wherein said at least one organic nucleophile is generated by at least one organic nucleophile source.

117. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 115, wherein said at least one organic nucleophile

is generated *in situ*.

118. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 115, wherein said relaxing composition comprises at least one hydroxide ion generator which generates hydroxide ions *in situ*.

119. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 115, wherein said at least one organic nucleophile is chosen from basic amino acids, amines, alcohols, and mercaptans.

120. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 116, wherein said at least one organic nucleophile source is chosen from derivatives of basic amino acids, derivatives of amines, derivatives of alcohols, and derivatives of mercaptans.

121. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 117, wherein said basic amino acids are chosen from lysine, arginine, and histidine.

122. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 121, wherein said basic amino acids are chosen from lysine and arginine.

123. A method for lanthionizing keratin fibers according to claim 122, wherein said basic amino acids are chosen from lysine and arginine in a non-ionic form, an ammonium form, and a carboxylate form.

124. A method for lanthionizing keratin fibers to achieve relaxation of said

keratin fibers according to claim 119, wherein said at least one organic nucleophile is chosen from amines of the following formula and salts thereof:

$$N(R)_3$$

wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

125. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 124, wherein R comprises from 1 to 6 carbon atoms.

126. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 125, wherein R comprises from 1 to 4 carbon atoms.

127. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 124, wherein at least one R is substituted with at least one group chosen from –COOR, $–COON(R)_2$, –OH, –SH, $–N(R)_2$ and salts of any of the foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

128. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 127, wherein R comprises from 1 to 6 carbon atoms.

129. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 128, wherein R comprises from 1 to 4 carbon atoms.

130. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 124, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

131. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 130, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

132. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 124, wherein said amines are chosen from isopropylamine, monoethanolamine, and aminomethylpropanol.

133. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 119, wherein said at least one organic nucleophile is chosen from alcohols of the following formula and salts thereof:

R-OH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

134. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 133, wherein R comprises from 1 to 6 carbon atoms.

135. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 134, wherein R comprises from 1 to 4 carbon atoms.

136. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 133, wherein R is substituted with at least one group chosen from –COOR', –COON(R')$_2$, –OH, –SH, –N(R')$_2$ and salts of any of the foregoing, wherein each R' is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

137. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 136, wherein R comprises from 1 to 6 carbon atoms.

138. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 137, wherein R comprises from 1 to 4 carbon atoms.

139. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 133, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts and inorganic acid addition salts.

140. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 139, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

141. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 119, wherein said at least one organic nucleophile is chosen from mercaptans of the following formula and salts thereof:

R-SH

wherein R is chosen from linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

142. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 141, wherein R comprises from 1 to 6 carbon atoms.

143. A method for lanthionizing keratin fibers to achieve relaxation of said

keratin fibers according to claim 142, wherein R comprises from 1 to 4 carbon atoms.

144. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 141, wherein R is substituted with at least one group chosen from –COOR, $–COON(R)_2$, –OH, –SH, $–N(R)_2$ and salts of any of the foregoing, wherein each R is independently chosen from a hydrogen atom, linear, branched, substituted, and unsubstituted C_1-C_{10} alkyl groups, and linear, branched, substituted, and unsubstituted C_1-C_{10} alkenyl groups.

145. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 144, wherein R comprises from 1 to 6 carbon atoms.

146. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 145, wherein R comprises from 1 to 4 carbon atoms.

147. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 141, wherein said salts are chosen from ammonium salts, alkali metal salts, alkaline earth metal salts, organic acid addition salts, and inorganic acid addition salts.

148. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 147, wherein said salts are chosen from sodium salts, potassium salts, calcium salts, salts derived from hydrochloric acid, salts

derived from sulphuric acid, salts derived from phosphoric acid, salts derived from acetic acid, salts derived from citric acid, and salts derived from tartaric acid.

149. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 115, wherein said relaxing composition further comprises at least one other constituent chosen from solvents; preservatives; perfumes; UV filters; active hair care agents; plasticizers; anionic, cationic, amphoteric, nonionic, and zwitterionic surfactants; hair conditioning agents; silicone fluids; fatty esters; fatty alcohol, fatty chain hydrocarbons; emollients; lubricants; penetrants; anionic, cationic, amphoteric, nonionic, and zwitterionic polymers; dyes; tints; bleaches; reducing agents; pH adjusting agents; sunscreens; and thickening agents.

150. A method for lanthionizing keratin fibers to achieve relaxation of said keratin fibers according to claim 115, wherein said relaxing composition further comprises at least one additional nucleophile different from said at least one organic nucleophile.

151. A multicomponent kit for lanthionizing keratin fibers comprising at least two components, which are separate from each other,

wherein a first component comprises at least one organic nucleophile, and

wherein a second component comprises at least one hydroxide ion generator.

152. A multicomponent kit for lanthionizing keratin fibers according to claim

151, wherein said at least one organic nucleophile is generated by at least one organic nucleophile source.

153. A multicomponent kit for lanthionizing keratin fibers according to claim 151, wherein said first component is to be applied to said keratin fibers before said second component.

154. A multicomponent kit for lanthionizing keratin fibers according to claim 151, wherein said first component is combined with said second component prior to application to said keratin fibers.

155. A multicomponent kit for lanthionizing keratin fibers according to claim 151, wherein at least one of said first component and said second component is in a form chosen from an emulsion, a solution, a suspension, a gel, a cream, and a paste.

156. A multicomponent kit for lanthionizing keratin fibers according to claim 151, wherein said keratin fibers are hair.

157. A composition according to claim 1, wherein said keratin fibers are hair.

158. A pretreatment composition for lanthionizing keratin fibers according to claim 36, wherein said keratin fibers are hair.

159. A method for lanthionizing keratin fibers according to claim 75, wherein said keratin fibers are hair.

160. A method for lanthionizing keratin fibers to achieve relaxation of said

keratin fibers according to claim 115, wherein said keratin fibers are hair.